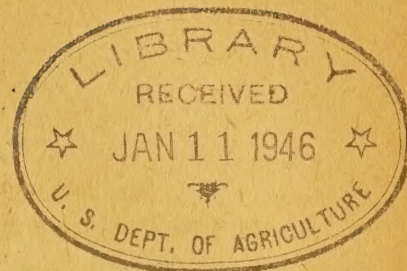


Sept. 14, 1944

CATTLE GRUB CONTROL
(An Extension Case History*)

By
M. P. Jones
Extension Entomologist



Cattle grubs, sometimes referred to as ox warbles, heel flies, or wolves, have been known to man from time immemorial. They are among the most widespread and injurious insect pests with which our livestock are beset. But in this country little has been done to combat this pest in an organized way until recent years.

Some Factors Which Inhibited Control

Farmers were familiar with the sight of cattle running for cover and gradually accepted the fact that the running was caused by some sort of fly. However, they were slow to associate the fly that caused the cattle to run with the grub which appeared in the animal's back some 8 or 9 months later. The farmer's primary interest was to control the fly that caused the cattle to run. Too little recognition was given to the damage caused by the grub stage of the insect. Also farmers were hard to convince that by controlling the grub the amount of running of the animals during fly season would be reduced.

Earlier measures for the control of the grub were tedious and best suited to farmers with small herds of cattle that were accustomed to being handled. No discrimination in price was made between grubby and grub-free animals by cattle buyers. Usually a flat deduction was made on the assumption that losses would be accrued to the packers because of grub damage. Except for certain entomologists, the extension service people were not mindful of the losses occasioned by grubs.

Action Producing Stimuli

The following series of events brought about changes in attitude and a desire to control the grubs:

1. Development of simplified control measures.
2. Increased appreciation of the losses due to grubs by packers, extension workers, and farmers.

*One of a series of case histories prepared for use in the conference on the Contribution of Extension Methods and Techniques Toward the Rehabilitation of War-Torn Countries, held in Washington, D. C., September 19-22, 1944. Extension Service and Office of Foreign Agricultural Relations. Cooperating.

3. Attention being called by buyers to dockage because of grubs.
4. Increased need for meat, milk and leather because of the war.

To extend the facts brought out in the above four points, leaders in the project sponsored:

1. Pilgrimages to slaughter houses to show the differences in the hides and carcasses of grubby and grub-free animals.
2. Demonstrations by extension personnel, adult and junior leaders. Some were held at livestock sales barns, and other places where the rank and file of farmers congregate.
3. The preparation and release of cattle grub control handbooks, folders, leaflets, slidefilms, motion pictures, color slides, and articles for the press and radio.

All of these things working together caused the grub control program to spread like wildfire. The one major factor which prevented an even greater acceptance of the practice was the situation which developed limiting the supply of rotenone, the insecticide recently developed as a grub killer.

A Typical Case History

During 1938 and 1939, the extension entomologist in Texas had been promoting a program in cattle grub control in some of the counties in the State. In the fall of 1940, the extension entomologist, the extension animal husbandman, and a research entomologist from the Bureau of Entomology and Plant Quarantine visited Mr. D. R. Carpenter, Anderson County Agent, and his assistant, Mr. W. M. Kimbrough, and discussed the desirability of a grub control program in Anderson County. The situation in this county will serve as an example to show how programs are developed.

Background Information

Anderson County is in a general farming area of East Texas, made up mostly of small farms, where cotton, corn, potatoes, tomatoes, fruit and both dairy and beef cattle are raised. The following statistics from the 1940 Census of Agriculture will provide certain background information. Of the 683,520 acres in the county, 473,629 acres, or 69 percent, are in farms. Approximately $\frac{1}{3}$ are less than 50 acres in size, and about $\frac{1}{3}$ are more than 100 acres in size. Tenants operate about half of the farms. Approximately $\frac{2}{3}$ of the farm population is of the white race. The 20,000 cattle in the county are fairly evenly divided between dairy and beef animals.

During the conference with the county agents the entomologists called to their attention the damage caused by cattle grubs as illustrated by the records from one packing house which showed that during 6 months of the year 62 percent of all cattle slaughtered were grubby. For the entire year about 35 percent of all the cattle were grubby. The hides make up about 7 percent of the weight and 11 percent of the value of the animals. When 5 or more grubs per hide are present, the hide is classed as grubby and devalued 1 cent or more per pound. If too many grubs are present, the hide is not tanned. Because of grub holes in the hides, the public is robbed of 2,000,000 pairs of good grade shoe soles each year.

An average of 2 pounds of meat is trimmed from grubby cattle and the remaining parts of the loins and ribs are devalued 2 cents per pound. It has been stated that the 10 percent increase in beef so vitally needed in the war could be secured through cattle grub control alone. On the basis of \$1.25 loss per head, as shown by packing house records, Anderson County can credit about \$25,000 loss each year to cattle grubs.

As the conference progressed, the county agents began to think of cattle grubs in terms of State and County losses. The following excerpt from a newspaper article by Mr. Carpenter illustrates this: "Figure the ration points on 1,680,000 pounds of loin and rib cuts. Quite a dinner for the grubs in Texas. These 840 tons of high-priced cuts would feed 4,600 soldiers for 365 days - meat for Marines going to grubs. And, in the case of 'Ole Bess,' the home-milk cow, about 1/4 of her normal production could be going to the grubs."

Analysis in Terms of People

The county agents also began to think of cattle grub control in terms of a county program. They knew that they could enlist the support and enthusiasm of 4-H Club members and vocational agriculture boys, and they knew that the 25 community clubs were a good means of dispensing information on the losses from the cattle grub, its life history and control. They were satisfied that the merchants would readily grasp the importance to their business of increasing the income level of the farmers and that they would provide the necessary supplies and otherwise support the program. The newspapers are always ready to carry informative articles in support of Mr. Carpenter's work. From past experience the agents realized that a different approach to the problem would need to be made to stimulate action on the part of the different classes of farmers and that many of the less progressive follow the leaders in their communities. Because of this fact, an effort should be made to use such leaders as demonstrators.

Demonstrations

Thirty-one demonstrations were held in Anderson County the first year to show the method of mixing the derris or cube powder with water and sprinkling it on the backs of the animals, then scrubbing it in with a stiff-bristled brush to control the grubs. Some 700 4-H Club boys heard the story and absorbed the enthusiasm of the entomologist and the county agent. As a result, fourteen 4-H Club teams were trained and energetically

demonstrated the method of scrubbing the backs of cattle. The boys repeated the story of how the grub lives and the damage it causes. Merchants offered prizes to the best team in their community. Newspapers were glad to carry articles and announce places of meetings. As a result, about 12,000 cattle were treated that year.

By the following season a method had been developed for applying the derris or cube powder in the dry form. Farmers liked this method and a demonstration team was trained in each of the 25 community clubs. The boys learned to give a realistic picture of the heel fly and how it became a grub and journeyed through the cattle causing damage all of the way, and winding up in the backs where the grubs could be found and killed.

The information in Department bulletins was useful to the demonstrators but many farmers do not take time to read bulletins. Therefore, a card carrying 106 words was prepared to tell the story and 2,000 of these cards were given out. In each community a special effort was made to hold a demonstration on the herd of a leading farmer and to have present interested businessmen, vocational teachers, Soil Conservation Service technicians, Farm Security Administration supervisors, and other influential people. Many more cattle were treated than during the previous season. One 11-year old boy put on 6 demonstrations and a pair of boys treated 1,000 head of cattle. An attempt was made to keep a record of the animals treated so that the owner could be notified when the next treatment date was due.

At the start of the campaign the third season, one farmer and two boys were selected from 44 neighborhoods in the county, and they agreed to demonstrate the treatment to all the rest of the folks in the neighborhood. Mr. Carpenter says: "I have tried it out, and know that it works better to have the boys do the work and lecturing than to have me do all the talking." Two boys put on two demonstrations on the streets of Elkhart during a poultry show. Such demonstrations are attractions at fairs and livestock field days.

Results

According to Mr. Carpenter's annual reports, farmers and ranchers who treated for grubs say it is one of the most profitable things they have ever done. One of the farmers who treated 100 head of cattle said it was worth \$5.00 per head to him. In a later report Mr. Carpenter states: "More farm people have controlled more insects, diseases and pests this year than in any one of the seven years the county agent has worked in the county..... It is believed that this increase is due largely to the county-wide control programs sponsored by the county agricultural agents and carried out by 4-H Club boys and farmer demonstrators. These control programs have been 'catching,' or rather the interest in them has been. For instance, two bankers attended a cattle grub control demonstration and heard 4-H Club boys tell of the damage this insect does to cattle..... They ask their farmer-customers: 'Why feed worms?' "